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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/020,041	12/14/2001	Joseph A. Izatt	UNIVP111USA	6298

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EXAMINER

LEE, HWA S

ART UNIT	PAPER NUMBER
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2877

DATE MAILED: 06/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/020,041

Applicant(s)

IZATT ET AL.

Examiner

Andrew Hwa S. Lee

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 December 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-61 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-15 and 40-61 is/are allowed.
- 6) ☒ Claim(s) 16-39 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 01/16/02
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Objections

Claims 28, 29, and 31 are objected to because of the following informalities: “the revealed backscattering characteristics” lack antecedent basis. There are no steps claimed where the backscattering characteristics is revealed. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 16-39 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 16 recites “time-frequency analysis” and the written description does not clearly define the claim term. It appears that “time-frequency analysis” is the taking of the Fourier transform of the cross-correlation data, and for examination purposes, it will be interpreted as such.

Double Patenting

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection

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is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. **Claims 16-26** as understood by the examiner are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 5-9, 13, 16 and 17 of U.S. Patent No. 5,994,690. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims are broader by having fewer limitations thus already protected by U.S. Patent No. 5,994,690.

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Claims 16, 17, and 19 correspond to both claims 5 and 6 in that Claims 16, 17, and 19 are broader by having fewer limitations.

Claim 18 is rejected similarly to claim 16 and 17 as applied above. The difference lying in that multiple measurements are made and then averaged, and it is within the skill level of an ordinary artisan to take several measurements and then average the measurements in order to obtain a more accurate measurement.

Claims 20 and 21 correspond to claim 7.

Claim 22 and 23's sample arm, reference arm, and controlling depth are inherent in OCT interferometers. Obviously, the scan depth would be limited to an area of interest. The scan depth would not have a depth of infinity.

Claim 24 corresponds to claims 8 and 9.

Claims 25 and 26 correspond to claim 13.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. **Claims 16 and 17**, as understood by the examiner, are rejected under 35 U.S.C. 102(b) as being anticipated by Cohen et al. (US 5,204,734).

Cohen et al show a rough surface profiler comprising analyzing cross-correlation data to extract spectral information about a sample, said analyzing comprising using time-frequency analysis and said analyzing comprising taking the Fourier transform of the cross-correlation data (Please see figures 3-14 and related discussion).

Allowable Subject Matter

5. **Claims 1-15 and 40-61** are allowed.

6. **Claims 27-39** would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

7. The following is a statement of reasons for the indication of allowable subject matter:

With regards to claims 1-12 and 52-61, the prior art of record fails to show or to suggest a method for obtaining information concerning a characteristic associated with a sample from cross-correlation data obtained using low coherence interferometry including all the steps as presently claimed wherein the cross-correlation data is obtained by altering the sample. Claims 2-12 and 53-61 are allowed by virtue of their dependence on independent claims 1 and 52.

With regards to claim 13, the prior art of record fails to show or to suggest a method for determining depth-resolved backscatter characteristics of scatters within a sample comprising of

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all the steps as presently claimed wherein each transfer function is squared and then the magnitude of the squared transfer function is averaged.

With regards to claims 14, 15, and 40-49, the prior art of record fails to show or to suggest an optical coherence tomography system or method comprising all the elements and steps as presently claimed wherein the cross-correlation interferogram data is averaged in the Fourier domain.

With regards to claims 50 and 51, the prior art of record fails to show or to suggest a method of determining cross-power spectra from cross-correlation data using low coherence interferometry wherein the output from a bank of narrow bandpass filters is used as a representation or spectral estimation of cross-power spectrum.

With respect to claims 27-39, as understood by the examiner, the prior art of record fails to show or to suggest a method optical spectroscopic information from cross-correlation data obtained using low coherence interferometry including all the steps as presently claimed wherein an intense pump laser is directed to the sample to alter the sample or revealed backscattering characteristics will contain features corresponding to inelastic backscattering characteristics.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew Hwa S. Lee whose telephone number is 571-272-2419. The examiner can normally be reached on Tue-Fr.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley Jr. can be reached on 571-272-2800 ext 77. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

A handwritten signature in black ink, appearing to read 'Andrew Hwa Lee', with a large, stylized initial 'A'.

Andrew Hwa Lee
Primary Examiner
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